CONSTRUCTION TOPICS

Curtis Carter P.E. – Structures Field Engineer
Office of Construction & Materials

Bridges & Structures Consultant Training
May 10, 2018

IOWA DOT

Bridge Construction Topics

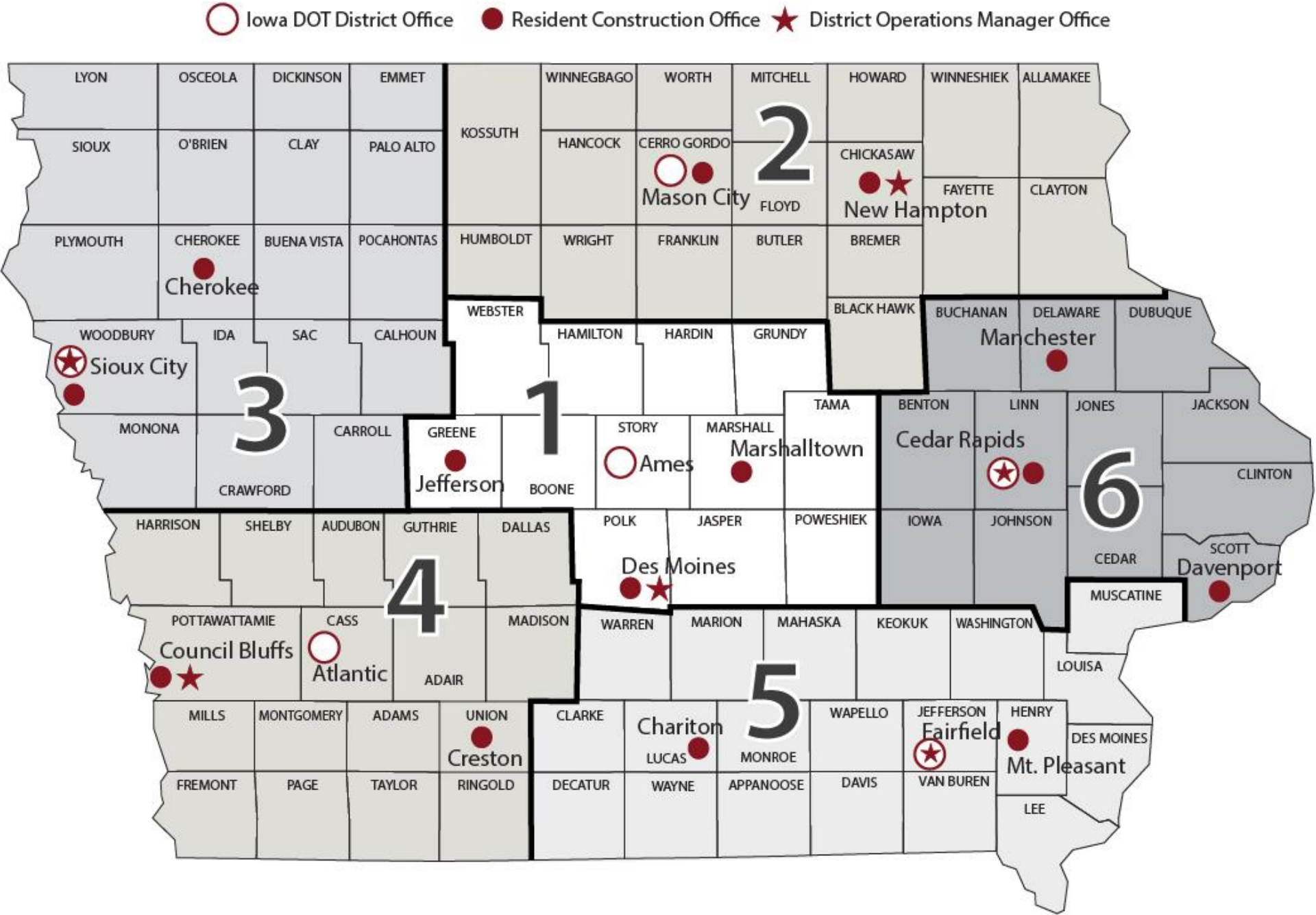
Outline:

- Construction Contract Administration
- Office of Construction & Materials
- Design Team Involvement During Construction
- Recurring Construction Issues

Construction Contract Administration

Project Authority:

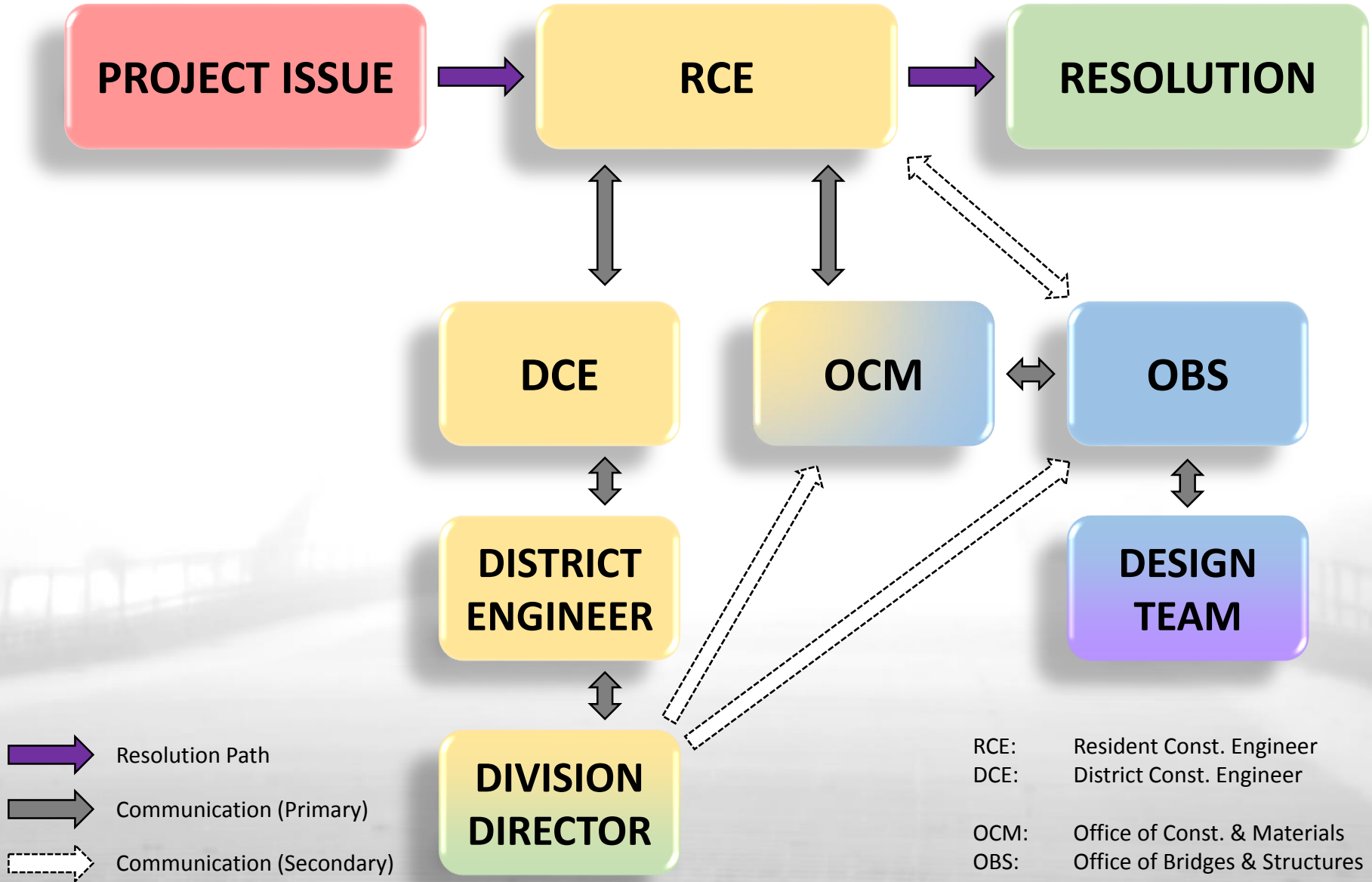
- Construction projects are administered at the District Level.
  - **6 Districts**
  - **14 Resident Construction Offices**
  - **https://www.iowadot.gov/districts/**


Iowa DOT District Office
Resident Construction Office
District Operations Manager Office
LYON
OSCEOLA
DICKINSON
EMMET
KOSSUTH
WINNEBAGO
WORTH
MITCHELL
HOWARD
WINNESHIEK
ALLAMAKEE
SIOUX
O'BRIEN
CLAY
PALO ALTO
HANCOCK
CERRO GORDO
Mason City
2
FLOYD
CHICKASAW
New Hampton
FAYETTE
CLAYTON
PLYMOUTH
CHEROKEE
Cherokee
BUENA VISTA
POCAHONTAS
HUMBOLDT
WRIGHT
FRANKLIN
BUTLER
BREMER
BLACK HAWK
BUCHANAN
DELAWARE
DUBUQUE
Manchester
WEBSTER
HAMILTON
HARDIN
GRUNDY
WOODBURY
Sioux City
IDA
SAC
CALHOUN
3
1
TAMA
BENTON
LINN
JONES
JACKSON
MONONA
CARROLL
GREENE
Jefferson
CRAWFORD
BOONE
STORY
Ames
MARSHALL
Marshalltown
Cedar Rapids
6
CLINTON
HARRISON
SHELBY
AUDUBON
GUTHRIE
DALLAS
POLK
JASPER
POWESHIEK
IOWA
JOHNSON
CEDAR
SCOTT
Davenport
Des Moines
4
MUSCATINE
POTTAWATTAMIE
Council Bluffs
CASS
Atlantic
ADAIR
MADISON
WARREN
MARION
MAHASKA
KEOKUK
WASHINGTON
LOUISA
5
MILLS
MONTGOMERY
ADAMS
UNION
Creston
CLARKE
LUCAS
Chariton
MONROE
WAPELLO
JEFFERSON
Fairfield
HENRY
Mt. Pleasant
DES MOINES
FREMONT
PAGE
TAYLOR
RINGOLD
DECATUR
WAYNE
APPANOOSE
DAVIS
VAN BUREN
LEE

Construction Contract Administration

Project Chain of Command:

- Engineer, as noted per Standard Specifications, is understood to be the Resident Construction Engineer (RCE), or one of their direct superiors.
- Project Chain of Command does not include Design Office, but RCE will consult Design Office, as necessary and as they see fit.


PROJECT ISSUE
RCE
RESOLUTION
DCE
OCM
OBS
DISTRICT ENGINEER
DESIGN TEAM
DIVISION DIRECTOR
Resolution Path
Communication (Primary)
Communication (Secondary)
RCE: Resident Const. Engineer
DCE: District Const. Engineer
OCM: Office of Const. & Materials
OBS: Office of Bridges & Structures

Office of Construction & Materials

Role of Office of Construction & Materials (OCM):

- Provides guidance and support to Field Office
  - On-call technical assistance, field examination
- Liaison between Design Office and Field Office
  - Policy Reviews
  - Design Plan Reviews
  - Constructability & Pre-Construction Meetings
  - Issue Assessment & Facilitation
- Industry Resource for:
  - Specification Interpretation
  - Construction Best Practices
  - Statewide Uniformity of Inspection, Prosecution, and Administration of Work

Office of Construction & Materials

Role of OCM, Continued:

- Maintains and/or contributes to various Iowa DOT contract documents and reference materials:
  - Standard Specifications
  - Developmental Specifications
  - Special Provisions
  - Instructional Memorandums (IM's)
  - Construction Manual
- Maintains list of approved construction fabricators, suppliers and products
  - Materials Approved Product List Enterprise (MAPLE)

Interaction Between Design & Construction

Design Office and Construction Office Collaboration:

- Extent of collaboration depends on:
  - Project administration team
  - Project complexity
  - Type and extent of construction issues
- For simple projects, Design Team involvement is usually minimal during construction.
- For complex projects, Design Team involvement may be extensive during construction.

Interaction Between Design & Construction

PRE-LETTING:

When should Design Team consult with Construction Office(s)??

- Design includes new construction materials or techniques
- Design includes single source or specialized products
- Design includes details with limited or unknown constructability

POST-LETTING:

When should Construction Office(s) consult with Design Team??

- Requests for Information (RFI's)
- Construction Submittals
- Construction Issues

Construction Submittals

Review Lead: Design Office

- Shop Drawings
- Const. Engineering Submittals
  - Falsework Plans
  - Temporary Shoring Plans
- Special Procedure Submittals (governed by plan note or SP)
  - Erection Plan
  - Demolition Plan
  - Post-Tension Plan
  - etc.

Review Lead: Construction Office

- Pile Driving Hammer Requests
- Foundation Field Logs
  - Pile Driving Logs
  - Drilled Shaft CSL Reports
- Common Procedure Submittals (governed by Std. Specification)
  - Weld Procedures
  - Drilled Shaft Installation Plan
  - Deck Grades & Pouring Plans
  - etc.

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DocExpress

Overview of DocExpress:

- Document organization/storage software with some basic workflow functions
- Electronic filing cabinet
- Used on every DOT construction contract

LOGIN OR REGISTER

Doc Express™ Paperless Contracting

Login to Doc Express

Doc Express™ Paperless Contracting

Email

curtis.carter@iowadot.us

Password

••••••••

Remember me

Log In

Create an account

Forgot your password?

n solution for documents

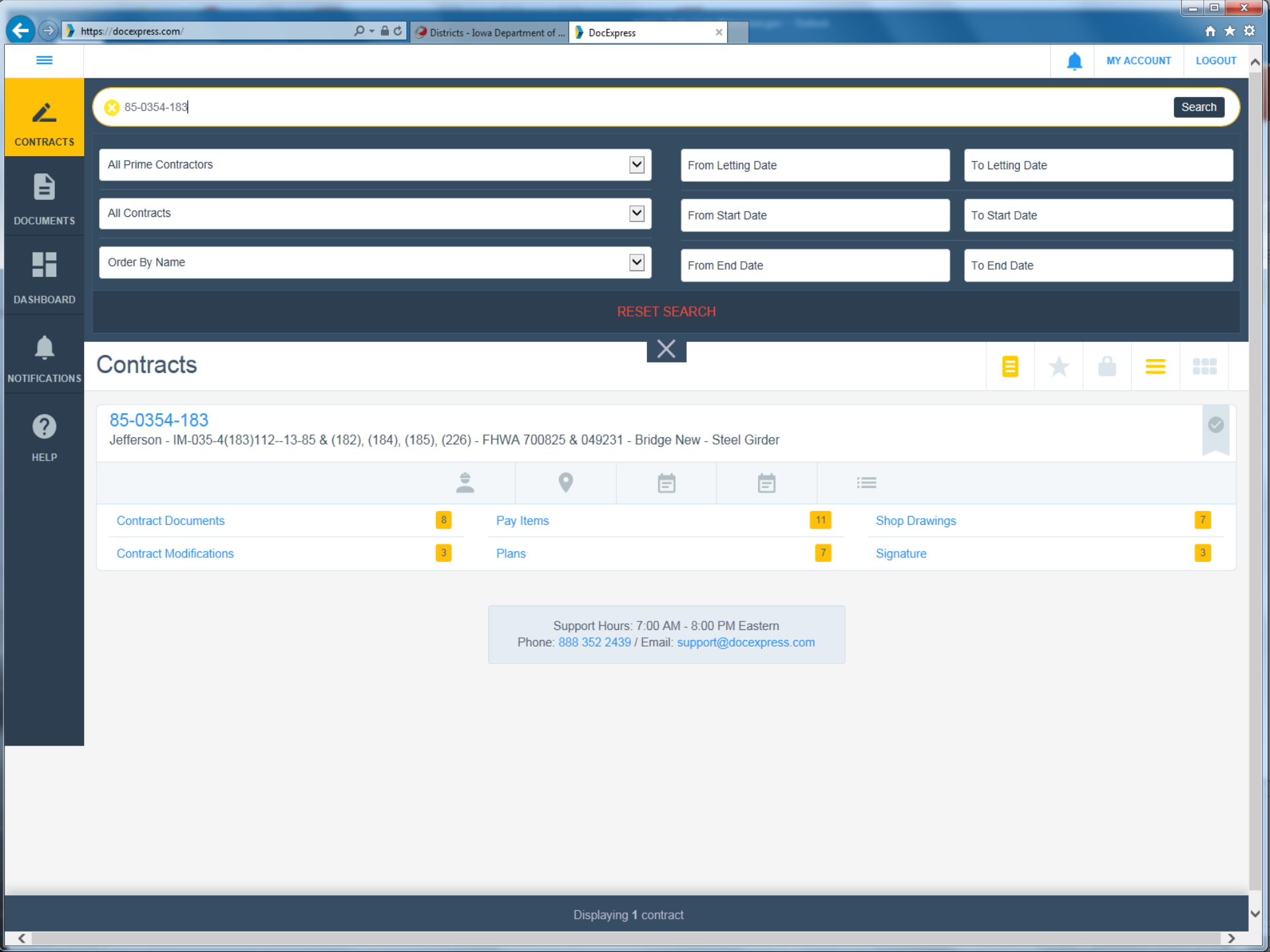
ction docs you need. Know the status
device, at any time.

ng for lost or damaged paper.

ve your processes as part of your e-construction initiative.
wa DOT reach its paperless contracting goals.

Paperless contracting

Filter and sort electronic documents quickly and get your hands on what you need. All stakeholders will always know the status of a document without the hassle of a VPN or FTP.


https://docexpress.com/
Districts - Iowa Department of ...
DocExpress
MY ACCOUNT
LOGOUT
CONTRACTS
DOCUMENTS
DASHBOARD
NOTIFICATIONS
HELP
85-0354-183
Search
All Prime Contractors
All Contracts
Order By Name
From Letting Date
To Letting Date
From Start Date
To Start Date
From End Date
To End Date
RESET SEARCH
Contracts
85-0354-183
Jefferson - IM-035-4(183)112--13-85 & (182), (184), (185), (226) - FHWA 700825 & 049231 - Bridge New - Steel Girder
Contract Documents 8
Pay Items 11
Shop Drawings 7
Contract Modifications 3
Plans 7
Signature 3
Support Hours: 7:00 AM - 8:00 PM Eastern
Phone: 888 352 2439 / Email: support@docexpress.com
Displaying 1 contract

Shop Drawings

85-0354-183 - Jefferson - IM-035-4(183)112--13-85 & (182), (184), (185), (226) - FHWA 700825 & 049231 - Bri...

Submit Document | Actions

Erection Plan

Detail plans for falsework or centering support of steel structures (i.e. erection plans) | update

Minnowa Construction Inc.

Submitted

Transition | Actions

13 comments | 10 supporting documents

May 03 2018 10:47 AM EDT **Commented** Spreader Beam Calcs

Spreader Beam Calculation Index

Minnowa Construction Inc. - Jeremy Bril

1460 Structural Steel Traffic Railing Shop Drawings

Steel Structures

Minnowa Construction Inc.

Amend and Resubmit

Resubmit | Actions

6 comments | 4 supporting documents

Apr 16 2018 01:37 PM EDT **Amend And Resubmit** 16-0045_For_Construction_Set-ParsonsReview_04162018.pdf Inner_Sleeve_Dimensions.pdf

See last page of attached PDF dated 4/16/2018 for comment regarding S2 splice inner sleeve. PDF showing necessary inner sleeve dimensions has also been provided. Also refer to comments made and PDF uploaded on 9/8/2017 with regard to S2 splice.

Document transitioned from Submitted to Amend and Resubmit.

Parsons - Chicago - Patrick Kerins

Disc Bearing Assemblies Shop Drawings Part 2

Steel Structures | update

Minnowa Construction Inc.

No Exceptions Taken

Transition | Actions

3 comments | 3 supporting documents

Sep 08 2017 10:57 AM EDT **Commented**

Viewer has no issue's with the welding as noted.

Iowa DOT - Fred Burkart

(183) Story 616 - Veritas Steel Shop Drawings for Final Approval

IM-35-4(183)112--13-85 | Steel Structures | update

Veritas Steel LLC

Submitted

Transition | Actions

DocExpress

Design Team use of DocExpress:

- DocExpress is primary means of handling Shop Drawing workflow.
- DocExpress user setup:
  - Initiate user account (DOT)
  - Assign access permissions (DOT)
  - Finalize account setup (user)
  - Set Submittal Notifications (user)
- DocExpress user guides:
  - Cookbook: https://iowadot.gov/construction_materials/inspection_tools/Guides%20-%20References/DOT-Cookbook-DocExpress.pdf
  - User Guide: https://iowadot.gov/construction_materials/inspection_tools/Guides%20-%20References/DOT-InstGuide-DocExpress.pdf

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DocExpress

Strengths and Limitations of DocExpress:

STRENGTHS:

- Good at managing mass quantities of basic, repetitive submittals
- Good workflow for “linear” review process
- Contract-Level organization

LIMITATIONS:

- Not optimal as a communication tool
- Not optimal for complex submittals that require open dialog
- Workflow not effective for “multi-lateral” review process
- Lacks clear Project-Level and Design-Level organization

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Construction Submittals – Best Practices

Use DocExpress for:

- Shop drawings and simple process submittals on typical projects

Do not use DocExpress for:

- Requests for Information (RFI's)
- Construction submittals that require multi-disciplinary review
- Construction submittals with complex review hierarchy
- Very large or complex projects with extensive submittal demand

Where DocExpress is not optimized for workflow, consider:

- Externally managed workflow (submittal coordination team)
- Project /workflow management software (e-Builder, etc.)

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Recurring Issues

Recurring Construction Issues

Some recurring themes may initiate additional design work:

- Project Scope Change
- Construction Errors
- Design Problems

Depending on the nature of the issue, additional work may be:

- Owner responsibility
- Contractor responsibility
- Designer responsibility

Recurring Issues – Scope Changes

Some scope changes that may require design modification:

- Re-concept of work
  Ex: change deck overlay to deck replacement
- Change of site conditions
  Ex: unanticipated flooding
- Unexpected subsurface conditions
  Ex: rock not encountered at expected depth
- Unforeseen constructability limitations
  Ex: construction equipment access problems
- Acceleration or re-phasing of project schedule
  Ex: schedule recovery for delayed project

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Recurring Issues – Construction Errors

Some construction errors that may require design resolution:

- Survey Errors
  Ex: incorrect substructure location
- Geometry Errors
  Ex: beam seat elevations, column out of plumb
- Fabrication Errors
  Ex: steel fabrication errors, prestressed beam camber
- Material Quality Issues
  Ex: low concrete strength
- Workmanship Issues
  Ex: poor concrete finish
- Physical Damage
  Ex: construction equipment impact

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Recurring Issues – Design Problems

Some design problems that may require re-design effort:

- Error in design quantities
  Ex: under-reported reinforcing steel quantity
- Error in design geometry
  Ex: mirrored beam seat elevations
- Misjudgment of detail constructability
  Ex: reinforcing steel conflicts
- Misinterpretation or Miscommunication of design intent
  Ex: ambiguous or missing plan notes
- Significant errors or omissions
  Uncommon (let's keep it that way)


KOMATSU
PC
200
LC
KOMATSU


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DOT
CRAMER


LOW CLEARANCE 13-9

QUESTIONS??

Curtis Carter P.E.
515-239-1185
curtis.carter@iowadot.us